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**The influence of a digital storytelling experience on pre-service teacher education  
students' attitudes and intentions**

by

**Sonia Gakhar**

A thesis submitted to the graduate faculty

in partial fulfillment of the requirements for the degree of

**MASTER OF SCIENCE**

Major: Education (Curriculum and Instructional Technology)

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Ames, Iowa

2007

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## TABLE OF CONTENTS

ABSTRACT	iv
CHAPTER ONE – INTRODUCTION	1
Area of focus	2
Research Questions	3
CHAPTER TWO – REVIEW OF THE LITERATURE	4
History of storytelling	4
Definition(s) of storytelling	5
History and definitions of digital storytelling	7
Digital storytelling meets 21 <sup>st</sup> century skills	12
Digital storytelling: Projects and place in the classroom	16
Digital storytelling: Value in higher education	19
Attitudes and Intentions	22
Summary	24
CHAPTER THREE – METHDOLOGY	25
Action Research Study	25
Purpose	26
Description of Negotiations	27
Study Context	27
Research Procedures	28
Research instruments	31
Participants	33
Data Analysis and Interpretation	34
CHAPTER FOUR – RESULTS AND DISCUSSION	37
Research Question # 1	37
Research Question # 2	46
Research Question # 3	49
General discussion	51
CHAPTER FIVE – RECOMMENDATIONS	56
APPENDIX A. DOCUMENTATION OF HUMAN SUBJECTS APPROVAL	60
APPENDIX B. PARTICIPANTS’ INFORMED CONSENT FORM	61
APPENDIX C. DIGITAL STORYTELLING ATTITUDE AND INTENTION PRE-SURVEY	63

APPENDIX D. DIGITAL STORYTELLING ATTITUDE AND INTENTION POST-SURVEY	64
APPENDIX E. FOCUS SEMI- STRUCTURED INTERVIEW GUIDING QUESTIONS	66
APPENDIX F. QUESTIONS TO GUIDE STUDENT REFLECTIONS	67
APPENDIX G. EXAMPLE OF A STORYBOARD BY A STUDENT	68
APPENDIX H. GRADING RUBRIC FOR THE STUDENT ASSIGNMENT	70
REFERENCES	72
ACKNOWLEDGEMENTS	76

## ABSTRACT

This study explores the experiences of pre-service teachers' with digital storytelling over a period of four weeks and examines their attitudes and intentions towards digital storytelling change during the course of the action research study. Both quantitative and qualitative data were collected for the study and mixed methods were used for analysis. There were no significant differences found between the means of pre and post-survey attitudes and intentions towards digital storytelling. Since the pre-survey attitudes and intentions were very positive, it is possible that the ceiling effect explains the lack of significant change. Significant themes emerged out of the three sets of qualitative data including expansion of knowledge beyond reading from a textbook, value of the research component, learning about the software, celebrating each other's stories, personal connection with the topic, importance of storyboarding and the complete experience from beginning to end. In general, the pre-service teachers emerged from the digital storytelling experience with positive attitudes towards it and with plans to use this approach in their teaching. The study also provides recommendations for strengthening the digital storytelling experience in future pre-service teacher education class.

## CHAPTER ONE

### INTRODUCTION

My educational journey in the Master's program in Curriculum and Instruction began in January 2006. My background is in Child Development and I worked as a kindergarten teacher in India. During my teaching years, I attended one of the INTEL future teacher-training workshops and that brought me to the world of technology (more specifically to computers and internet). I became intrigued with its possibilities for teaching and learning. Before enrolling in a masters' program in the United States, my computer usage was limited to email, instant messaging, and the word processor. During my first semester at Iowa State University, I took C I 505, introduction to using technology in learning and teaching. This course introduced me to a plethora of software programs and their pedagogical value. Everyday was a new learning experience for me and I soon began feeling comfortable using and exploring digital technologies. One of the projects that was really exciting for me and stood out for me was the digital story project where I created a personal story depicting an Indian wedding. The best part of this digital storytelling project for me was being able to share it with other students, colleagues and my family.

Stories have always been important to me and are a part and parcel of our cultures. Storytelling is one of the oldest methods of communicating ideas and learning (Mello, 2001). Stories are passed from generation to generation. I remember my grandmother narrating stories to me before bedtime. I can see connections between my thoughts, actions, and approach to life and my grandmother's stories. Telling stories to

children is a ritual in most cultures, and is performed usually by the adults, and it widens the imagination of children.

During my second semester at ISU, I was offered a teaching assistantship position and taught an introductory undergraduate course to pre-service teachers on how to meaningfully integrate technology in content areas that helped me to gain confidence in teaching with technology. I believe that this real life and highly practical and engaging experience has opened the gates for future projects I might undertake after going back to my country. When I was deciding about my area of focus for my thesis, I wanted to research digital storytelling and as destiny might have decided, the introductory course for pre-service teacher education students was redesigned and one of the extended lab activities was to design and create a digital story around a historical episode or an event in time using primary sources and a point of view. The “National Educational Technology Standards” (International Society for Technology in Education, 2000) for teachers were used to guide the development of all the lab activities including the digital storytelling project. The digital storytelling activity was situated as a classroom scenario (something the pre-service teacher education students could model in their future classrooms) integrating content (social studies) and technology.

#### Area of Focus

The purpose of this action research study was to examine the influence of digital storytelling on the attitudes and intentions of pre-service teacher education student towards the use of technology in teaching and learning. The study also examined how pre-service teachers envision using digital storytelling in their classrooms. McDrury and Alterio (2003, p.31) define storytelling as a uniquely human experience that enables us to



convey, through the language of words, aspects of ourselves and others, and the worlds, real or imagined, that we inhabit. In the 21st century, the use of electronic media tools combined with the traditional method of storytelling has given rise to digital storytelling. The movement of digital storytelling began in the 1990's and it has been defined by many people and used in many different contexts. For the context of this study, I will define digital storytelling as a process involving telling stories and sharing information through multimedia (Armstrong 2003). Multimedia includes images, video, narrative, soundtracks, and digital media.

Research indicates pre-service teachers' beliefs about technology are the best predictor of technology use in the classroom (Russell et al, 2003). This suggests that if pre-service teachers have experience using technology and find it valuable in enhancing their learning, they develop positive attitudes and it increases the likelihood that they will use it in their future classrooms. Thus, I investigated the following research questions about the pre-service teachers' digital storytelling experience for my action research study.

#### Research Questions

- Do the attitudes of pre-service teacher education students' towards the use of digital storytelling change during the study?
- Do the intentions of pre-service teacher education students' with respect to the use of digital storytelling in their future classrooms change during the study?
- How can the laboratory activity and my teaching strategy be improved?

## CHAPTER TWO

### REVIEW OF THE LITERATURE

This chapter reviews and summarizes the literature from different lines of research associated with digital storytelling. First, the history of storytelling is explored to set the background for examining digital storytelling. Different definitions of storytelling are then presented. The next three sections focus primarily on specific aspects of digital storytelling. First, the history and definitions of digital storytelling by significant people in the field are presented and a definition of digital storytelling for the purpose of this study is constructed. The next section illustrates how digital storytelling engages students in developing 21<sup>st</sup> century skills. The last section provides examples of specific digital storytelling research and projects undertaken at the K-12 and higher education levels to identify gaps in the current research and points out the need for more research on digital storytelling. At the end of the chapter, a theory of reasoned action (TRA) is introduced that describes attitudes, intentions and their inter-relationships.

#### History of storytelling

Storytelling is an ancient craft of communicating events and experiences using words, images, sounds, and gestures. Looking at the historical roots of the storytelling, it is as old as our civilization. It has evolved from the pictorial stories painted in the caves/on the walls to the oral tradition of passing stories from one generation to another (Sawyer, 1990) to print media in books, newspapers and then electronic media in form of films and musicals. Possibly, the earliest form of storytelling is the oral tradition in which body language, facial expressions, and voice are used to enhance the meaning of the

story. Traditional storytellers traveled from one place to another and were valued for their unique manner of storytelling. Storytelling was a useful and necessary way to transmit cultural values and traditions (Patterson, 1999). Probably the carvings (pictures) carved in caves told stories of civilizations past and may also be rudimentary forms of storytelling before language developed.

As described by Bruner (1991), “narrative comprehension (*encapsulated in stories and storytelling*) is among the earliest powers of mind to appear in the young child and among the most widely used forms of organizing human experience” (p.9). With the invention of writing, stories were written using a variety of media, including wood, stone, tree bark, materials like silk, paper, and leaves. After invention of the printing press, stories were printed in form of books and passed on to many people across the world. They were also electronically saved in form of films. I have grown up in Indian culture listening to tales from Panchtantra and Malgudi days. All the kids anxiously waited for nighttime to hear a new story told or an old story retold.

Everyday conversation in our homes and society is also a form of story. What happens on a daily basis in our lives is conveyed to others and is a story. They are human-centered and that is what draws us naturally towards them. In fact, the most capturing conversationalists are the good storytellers and we love listening and responding to stories. Beyond informal and personal reference to storytelling, many people have done research and given formal definitions of storytelling.

#### Definition(s) of storytelling

Storytelling has been defined in different ways. Storytelling has three main elements: a narrator, a story and audience. According to Gere (2002), “the act of using

language and gesture in colorful ways to create scenes in a sequence” is storytelling.

McDrury and Alterio (2003, p.31) define storytelling as a uniquely human experience that enables us to convey, through the language of words, aspects of ourselves and others, and the worlds, real or imagined, that we inhabit. In elementary classes, story time is the most awaited and pleasurable time for both teachers and children. Storytelling is not only used for communication purposes, but is also has been used to teach literacy skills, cooperative learning skills, critical thinking, and to build knowledge of different contexts (Mello, 2001).

When creating their own stories, children enhance their writing process. Sharing them with peers, teachers, and family forms a unique way of communication. Storytelling is also important for the very young because the child recognizes meaning and understanding of the words. Storytelling is one of the oldest methods of communicating ideas and learning (Mello, 2001).

Stories are used to entertain, arouse imagination, transmit culture and traditions, share wisdom and knowledge, pass on values and rituals, and educate. Stories are personal in the sense that a narrator tells a story and the listener makes mental images of the frames according to their past experiences and derive meaning out of it. The plot and characters are pivotal in any story and capture the listeners. Taken together, storytelling is an art of communicating ideas and thoughts in such a manner that it creates scenes in the minds of the listeners and they derive meaning out of it.

*Human beings are naturally predisposed to hear, remember, and to tell stories. The problem for teachers, parents, government leaders, friends and computers is to have some more interesting stories to tell.*

Roger Schank (1990), Tell me a story

### History and definitions of digital storytelling

Storytelling has been transferred into digital context as a result of widespread access to computers and the Internet. In the 1960's, digital storytelling was available in form of films and television programs but it was in the reach of few people. In the last decade, with the access to personal computers, digital video cameras, video authoring softwares, digital pictures, world wide web, DVDs, creating stories digitally (home video production) and sharing them with a wider audience has become possible for majority of the people (Mark Nichols ; Beeson and Miskelly, 2005). The power of digital storytelling has been discovered by the business world, media professionals, artists, educators and common and many scholars are involved in researching about its potentials.

During the 1990's, Joe Lambert along with his wife, Nina Mullen and Dana Atchley established the *Center for Digital Storytelling* (CDS) in Berkeley, CA rooted in the art of personal storytelling (Lambert, 2002). Joe Lambert is one of the leading and notable figures involved in the birth and propagation of digital storytelling. CDS conducts workshops and provides skills to the young and adults to use digital tools and media to create and share personal stories about themselves, events, people, places, or their communities. CDS (<http://www.storycenter.org>) puts emphasis on *personal voice and facilitative teaching methods* when approaching the definition of digital storytelling.

As the movement progressed and more and more people became interested in digital storytelling globally, the *Digital Storytelling Association* (DSA; <http://www.dsaweb.org>) was established and has representatives from 8 countries and more than 25 United States.

The Digital Storytelling Association defines digital storytelling as “the modern expression of the ancient art of storytelling...using digital media to create media-rich stories to tell, to share, and to preserve. Digital stories derive their power through weaving together images, music, narrative and voice, thereby giving deep dimension and vivid color to characters, situations and insights” (Digital Storytelling Association, 2002).

One of the largest digital storytelling projects was established by Daniel Meadows in Wales, UK in collaboration with BBC and is popularly known as *BBC Capture Wales Digital storytelling project* (<http://www.bbc.co.uk/capturewales>). The project’s purpose is to bring communities together and build social relationships by sharing stories. Meadows (2003) sees digital stories as 'scrapbook television' that are short, personal, multimedia tales, told from the heart. They are rich on feeling, and - because, in theory, anyone can make them, and publish them on screens anywhere - they have the potential to be a very democratic kind of storytelling.

Mellon (1999) defines digital storytelling as the application of multimedia software techniques to the telling of stories. Quite similar is the definition by Armstrong (2003) which is telling stories and sharing information through multimedia.

More recently, Jason Ohler and Bernajean Porter have done significant work in the field of digital storytelling. For Ohler, digital storytelling is about living, learning, and working in the digital age. Ohler (2007) believes that stories are the most important need after food, shelter and clothing and for everybody. Teachers, students, business people,

dads and moms, policy makers, artists, and master storytellers can benefit from the art of storytelling and use in their lives. Ohler (2007) states that a story is big and it should have certain essential story mappable elements and a universal appeal to be remembered and have an empowering effect.

According to Ohler (2007), the story has more than a beginning, middle and an end. Figure 1 shows the essential elements of a good story.

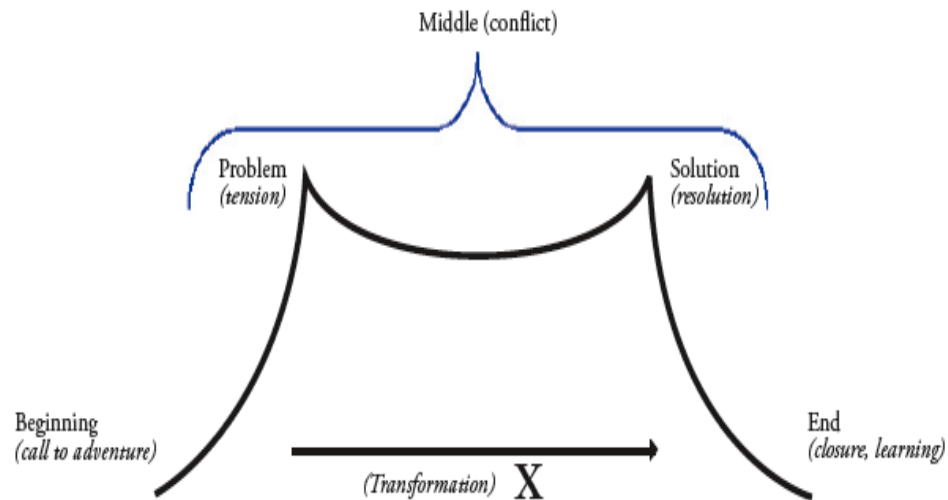


Figure 1. Visual Portrait of a Story or Story Map (Dillingham, 2001) with transformation (Ohler, 2003)

Source: Ohler (p.89, 2007) *Telling your story: A handbook for putting the story into digital (and traditional) storytelling*

- Beginning or a call to adventure: The normal life of a character(s) is presented to the listener and interrupted by a significant event, initiating a physical, emotional, intellectual or spiritual journey for the main character(s) (See Figure 1).
- Problem-solution involving transformation: Character(s) encounters problems that are solved through a personal transformation of some kind. Transformation can

happen in a number of ways, including skill acquisition, maturation, learning and discovery.

- End or closure: The story comes to a meaningful conclusion not necessarily a happy ending.

The story map (Figure 1) acts as a guide to write the major parts of the story so that it becomes meaningful, captivating, and memorable for the listener. Before teaching how to add technological tools and enhance the story by adding sound, motion and expression, it is important that the elements of storytelling are understood and we have a good story. Scripting a story or creating a storyboard with your narration and all other elements like music, sound, effects is another way to get prepared before actually mixing all the elements digitally. Ohler (p. 78, 2007) stated that the goal is to preserve what works from the world of oral storytelling and take advantage of the extra power that digital technology offers without being distracted by it.

In her book, *Digitales: The art of telling digital stories*, Porter (2005) describes digital storytelling as the one that takes the ancient art of oral storytelling and engages a palette of technical tools to weave personal tales using images, graphics, music and sound mixed together with the author's own story voice. In her book, she has beautifully combined the traditional art of storytelling with the technology tools and clearly described step by step how to construct a digital story. According to her, the process of making a digital story can be divided into four progressive and usually overlapping phases such as pre-production, production, post-production and distribution. In all, there are seven steps in the phases that are illustrated in Figure 2.







Phases	Steps
Pre-Production Phase 	Writing a narrative script
	Planning the project
	Organizing project folders
Production Phase 	Making the voiceover
	Gathering and preparing media resources
Post-production Phase 	Putting it all together
Distribution Phase 	Applause, Applause

Figure 2. Seven steps to create a digital story (Bernajean Porter, 2005; <http://www.digitales.us>)

The first step is writing a narrative script that includes finding a story and penning down a first person narrative that tells a story to suit one's own voice and style. The second step planning the project involves storyboarding. Before actual production, finding the right images, sound and text to go along with the narrative provides the visual blueprint (on paper or electronic form like MS word document, power point slides etc) of how a digital story will look like frame by frame. The third step is to make folders in order to organize all the image files, sound files, voice files, storyboard and any other necessary pieces to be used in creating digital story and referencing.

In the production phase, the first step is to make voiceover. Voiceover are the digital audio files that are created by recording the final script in one's own voice. Voice plays an important role in lending emotions and feelings to the digital story and making it personal. Gathering and preparing media is the next step in which storyboard prepared in the pre-production stage helps a great deal. The images, sound files for each frame and

any other media are gathered and organized into the folders. The final selection of images and sound is done based on the narration or voiceover.

In the post-production phase, video editing tools are used to put all the elements and media together to create a digital story. It requires a lot of decision making and selecting from a number of options regarding transitions, effects, and soundtracks. Credits and acknowledgements are given at the end of the digital story.

Finally sharing and celebrating the joy of creating digital story comes in the distribution phase. Digital stories can be shared in the class, exported to emails or DVDs, published on web and shared with family, friends and others.

Examining the work of a number of significant people involved in digital storytelling, I found that each one of them regarded story as the main ingredient in the definition of digital storytelling. A good story is a must. A good story is enhanced by the use of images, sound, text, music and other media and technological tools and also makes it more obvious if the story does not have content/hold. Thus, storyboarding/ scripting the story and gathering and arranging all the elements needed to create a digital story beforehand makes the process more successful and meaningful.

#### Digital storytelling meets 21<sup>st</sup> century skills

One of the recent emerging standards for curriculum development in schools is 21<sup>st</sup> century skills. These are represented in form of enGauge, a web-based framework developed by North Central Regional Educational Laboratory (NCREL) along with Metiri group. The 21<sup>st</sup> century skills (2004) include four categories such as digital age literacies, effective communication, inventive thinking and high productivity (See Figure

3). Each of the categories encompasses a set of expected skills. They are expected by students to live, learn, and work in a technologically based digital society.

<p>Digital-Age literacies</p> <ul style="list-style-type: none"> <li>• Basic, scientific, economic, and technological literacies</li> <li>• Visual and information literacies</li> <li>• Multicultural literacy and global awareness</li> </ul>
<p>Inventive thinking</p> <ul style="list-style-type: none"> <li>• Adaptability and managing complexity</li> <li>• Self-direction</li> <li>• Curiosity, creativity, and risk-taking</li> <li>• Higher-order thinking and sound reasoning</li> </ul>
<p>Effective communication</p> <ul style="list-style-type: none"> <li>• Teaming, collaboration, and interpersonal skills</li> <li>• Personal, social, and civic responsibility</li> <li>• Interactive communication</li> </ul>
<p>High Productivity</p> <ul style="list-style-type: none"> <li>• Prioritizing, planning, and managing for results</li> <li>• Effective use of real-world tools</li> <li>• Ability to produce relevant, high-quality products</li> </ul>

Figure 3. enGauge 21<sup>st</sup> century skills

Digital storytelling encompasses many of the 21<sup>st</sup> century skills and 21<sup>st</sup> century skills are also cross-referenced with National Educational Technology Standards for

Students [NETS\*S; International Society for Technology in Education (ISTE), 2000 (See Figure 4)].

ISTE NETS	enGauge 21 <sup>st</sup> Century Skills
Basic Operations and Concepts	Technological Literacy
Social, Ethical, and Human Issues	Multicultural Literacy, Social and Civic Responsibility, Personal Responsibility, Teaming and Collaboration, Effective Use of Real-World Tools
Technology Productivity Tools	Information Literacy, Creativity, Relevant High Quality Products, Teaming and Collaboration
Technology Communication Tools	Interactive Communication, Information Literacy
Technology Research Tools	Information Literacy, Economic Literacy, Scientific Literacy, Effective Use of Real-World Tools
Technology Problem-Solving and Decision-Making Tools	High-Order Thinking and Sound Reasoning, Economic Literacy, Effective Use of Real-World Tools

Figure 4. Commonalities between NETS and 21<sup>st</sup> century skills

Compared to ISTE standards, enGauge 21<sup>st</sup> century skills also address visual literacy, global awareness, curiosity, risk-taking, or managing complexity. Some of the 21<sup>st</sup> century skills promoted by digital storytelling are described below:

*Visual Literacy*- Students select the appropriate images to show and depict the meaning of their story.

*Information Literacy*- Students research about their topic, read different perspectives, think through them, write their own thoughts and understanding, and design effective media to convey information.

*Technical literacy*- Students play with the technological programs and tools and mix and blend images, sound, narration, transitions, and effects (different medias) to communicate the meaning to the audience.

*Creativity and Inventive thinking-* Students interact with multimedia to create multi-sensory experiences for the audience and convey their ideas effectively.

*Higher order thinking skills-* Students interpret the researched and existing information and go beyond it to add personal meaning and understanding to the stories they create.

*Interactive Communication-* Finding, reading, writing information and understanding different forms of communication other than textual and communicating with a larger audience digitally.

*Teaming and collaboration-* While creating digital story projects, students work collaboratively helping and seeking help from others working on the projects and tap on each other potentials.

*Effective use of real-world tools-* Digital storytelling projects give students opportunities to use the real-world tools like internet, computers, digital cameras and work on enhancing their abilities to digitally communicate. In addition to 21<sup>st</sup> century skills and NETS\*T, there are standards for Social Studies given by the National Council for Social Studies (NCSS).

The NCSS (2002; [www.socialstudies.org/standards/strands/](http://www.socialstudies.org/standards/strands/)) has identified ten thematic strands that form the basis for social studies curriculum standards. The second strand Time, continuity, and change states that human beings seek to understand their historical roots and to locate themselves in time. Such understanding involves knowing what things were like in the past and how things change and develop. Different people see history differently. The eyes of a schoolgirl, a homemaker, a factory worker, an man, or a person involved in the event may interpret the same event differently. Hence the

personal stories are very important when interpreting varying points of view in history and engage students to experience, understand and learn from those experiences.

The emphasis in social studies is on principles of teaching and learning that have enduring applicability across grade levels and content areas. These principles are summarized in the statement that social studies teaching and learning are powerful when they are meaningful, integrative, value-based, challenging, and active.

Integrated social studies teaching and learning include effective use of technology that can add important dimensions to students' learning. Teachers can provide students with information through films, videotapes, videodiscs, and other electronic media, and they can teach students to use computers to compose, edit, and illustrate social studies research reports.

#### Digital storytelling: Projects and place in the classroom

In the last few years, the field of education has become aware and excited about the uses of digital storytelling as being meaningful and engaging to students. Some innovative teachers are using digital storytelling in the classrooms as a pedagogical tool to construct knowledge and impart new-age skills to the students. The majority of the projects conducted in the school or after school programs revolve around sharing personal stories of students.

Banaszewski (2002) conducted a digital storytelling project with his fourth and fifth graders in Massachusetts. The project was called the Place Project in which students created a digital story about the place that is important to them. It was different and personal for each student. As a pre-writing activity, students were asked to write about places where they feel comfortable, happy or safe and where they can just be themselves.

Their responses varied from bedrooms, backyards, ball fields to imaginative places.

Banaszewski followed a step-by-step approach to move students to write a story and then add digital elements. To write a story, students were given outline with prompts to introduce their place by telling where it was, what it looked like and why it was important to them. The actual story answered questions like their earliest memory of the place, their feelings when they are there, the difference that place makes in their life, and what they see in that place that no one else can see. After that, students visually represented their place by drawing pictures manually or electronically and it acted as a 'hook' to introduce their stories.

For Banaszewski, *technology was always secondary to the storytelling*. In order to build respect for each other's place stories in the classroom, Banaszewski used two approaches; one involved sharing his own place story about the classroom and using story coaching approach where students worked as peer coaches for each other. Adding images, music, and voice into the computer and sequencing the story frames was taught systemically using iMovie. Banaszewski (2002) concluded "the place project demonstrated how technology can be instrumental in the perennial struggle of students to find voice, confidence, and structure in their writing."

Middle school social studies teachers in Cobb County (2004), Georgia used digital storytelling project with sixth graders instead of writing a report on their family's geographic, religious, and cultural heritage. Students scanned some pictures and some pictures were taken by them of their family artifacts and were combined to make a video celebrating their family's richness. The stories were shared with the class and also put on the school's website ([www.mabryonline.org](http://www.mabryonline.org)) to share with the whole world.

In an action research project around digital storytelling with 7<sup>th</sup> grade language arts students, Behmer (2005) observed two groups of students: one that followed step-by-step procedures to create digital story and other that did not follow the highly structured lesson plan and found that both the groups ended up creating powerful digital stories. While creating a digital story, children followed a process of preproduction, production and presentation. In the preproduction stage, children plan, discuss, find and write to frame a story map for their stories. They come up with questions, discuss in class, brainstorm, select the title and theme for the story, write and conduct an interview, find different resources (images, music, clips) and prepare a storyboard to highlight main things to be covered. They tell their story to see the impact. In the production stage, children learn and use technology tools to make their digital story. They select and edit images. They write a narrative that will follow their story. They also decide on the music depicting the mood of the story at various points. They give transitions and effects and record their voice. A credit list is also added to the story. In the presentation stage, children share their stories with their peers and teacher to receive feedback and revise them before their final presentation.

New (2006) reported about a high school course called Multimedia and Film Design taught by two teachers Joe Fatheree and Craig Lindvahl in Southeastern Illinois. In the first semester of the yearlong class, students learn about the basics of videography (framing of scenes, sound, lighting) and storytelling (plot and character development). During the second semester, students watch and critique films, produce a visual interpretation, defend their creative ideas, and complete at least one public-service project. For the capstone or final project of the course, they create a film starting from



scripting, storyboarding to the finished product. The course is designed to help students learn the art of storytelling using contemporary technology tools and also to give students experience to real world and do something for their communities. The films created by students are showcased in the local movie theater to the community. Celebrating student's work is an important piece of the whole project. One of the students acknowledged that rewriting drafts of scripts and getting comments from teachers and peers have definitely improved her writing skills and her ability to work in groups to complete projects. Both the teachers have been able to get grants for the projects and have sophisticated studio with state-of-the-art equipment for video production.

The examples of the digital storytelling projects show that it is used at K-12 levels to enhance multiliteracies/21<sup>st</sup> century skills in students and schools are beginning to realize its potential. Hence, it becomes imperative for pre-service teacher education students to have knowledge and skills to create and teach digital storytelling.

#### Digital storytelling: Value in higher education

“The real power behind digital storytelling is the knowledge and ability to use tools to teach the old traditions of storytelling” (Standley, p. 18, 2003). One powerful way to motivate students to understand an academic concept and to showcase their creativity is through digital storytelling (Dupain, 2005). Higher education has also begun to realize the importance of digital storytelling since it is very important for the pre-service teachers to understand the process of digital storytelling and be comfortable to teach to their future students relating with content (New, 2006).

Recently, the Department of Telecommunications at Ball State University ([www.bsu.edu](http://www.bsu.edu)), Indiana started offering a M.A. program with emphasis on digital storytelling. The program places emphasis on developing an understanding of the process of storytelling and providing strong foundation for the same, elements of story design, approaches to creativity and developing skills in crafting stories using new media and technological tools. The students are required to take courses in four different departments (Information and communication sciences, communication studies, journalism, and telecommunications), complete at least three semester-long creative projects with emphasis on creativity in content. They also undergo a four-week long cultural immersion program where they study storytelling in a different culture from theirs.

The faculty members at Washington State University found that by using a cross-curricular video production project, students were able to think deeply and critically about a topic and exhibit multidimensional approach to its understanding by threading their own experiences, course content and issues about schooling (Hall and Hudson, 2006). The video production project was a major assignment for undergraduate elementary education students in either three or four courses pertaining to the field of special education, English as a second language methods, educational technology and social foundations. Students personalized the stories about the content that were represented abstractly through textbooks and discussions.

For the past three to four years, faculty members along with students at the College of Education, University of Houston have been exploring the educational uses of Digital Storytelling through a variety of undergraduate and graduate level courses offered

through the College of Education's Instructional Technology Program (Robin & Pierson, 2005). A course on digital photography is offered where students use a digital still camera to learn to take a variety of shots, visually interpret the images and create a digital story using still pictures. This course is a pre-requisite for a course on digital video where students learn to take video clips and create a digital story using them.

In one project, digital storytelling was used to break the stereotypes pre-service teachers have about science and scientists (Kim, 2006). Twenty-two pre-service teacher education students involved in the study created stories about women and minority scientists and how they perceive science. After the project, students commented that through the digital storytelling projects they learned a lot about women and minority scientists who were forgotten.

In another study, Morehead et al (2007) examined the process 20 pre-service teacher education students go through when developing their digital story portfolios describing their philosophy and commitment to teaching using imagination, voice and a common movie production application. Researchers found that prospective teachers' had high self-efficacy as they were getting closer to finishing their products. Participants also mentioned the importance of using concept maps and storyboarding techniques for writing personal narratives.

The current research on digital storytelling in higher education and K-12 suggests that digital storytelling has the potential to effect curriculum in higher education and K-12 classrooms. Primarily, it is being used to showcase creativity, enhance communication skills and address personal experiences and opinions. There is a need for more research on digital storytelling in specific content areas and how digital storytelling can be used as

a pedagogical tool. There is also a need for more research focusing on digital storytelling and its impact on student learning and performance in K-12 as well as higher education especially as to develop 21<sup>st</sup> century skills. Developing favorable attitudes and intentions towards this emerging technology can predict its usage by pre-service teacher education students.

### Attitudes and Intentions

In 1980, Ajzen and Fishbein developed a theory and model called Theory of Reasoned Action (TRA model) that is used to predict and understand human behavior and is applied to many situations. According to TRA model, a person's *intention* to perform or not to perform a behavior is an immediate determinant of the action. So to predict an individual's behavior, the most efficient way is to ask what s/he intends to do. People usually act in accordance with their intention. What determines a person's intention can help us understand behavior.

Intention is a function of two determinants, one is personal and the other one is social influence. The personal factor is the *attitude towards the behavior* or in my study digital storytelling experience. Attitude is an individual's positive or negative evaluation of performing the behavior. It is the personal judgment of an individual whether s/he developed a favorable or unfavorable evaluation after experiencing it or based on past experiences or getting information about it. The second determinant of intention is the *person's perception of the social pressures*. If an individual believes that other significant people in her/his social circle thinks that s/he should perform the behavior, it influences the intention of the individual to adhere to the behavior. This is perceived perceptions of

an individual and subjectivity is involved in it, so this factor is referred as subjective norm.

Attitudes are a function of beliefs. A person who believes that using a particular technology will result in positive outcomes for him/her and the students will hold a favorable attitude toward using it and if a person believes that using digital storytelling will lead to negative outcomes in classroom will hold an unfavorable attitude towards it. Hence, the beliefs that influence a person's attitude towards a behavior, an event, or a technology are called behavioral beliefs. Subjective norm is also a function of beliefs and the beliefs underlying a person's subjective norm are called normative beliefs. Figure 5 represents the TRA model.

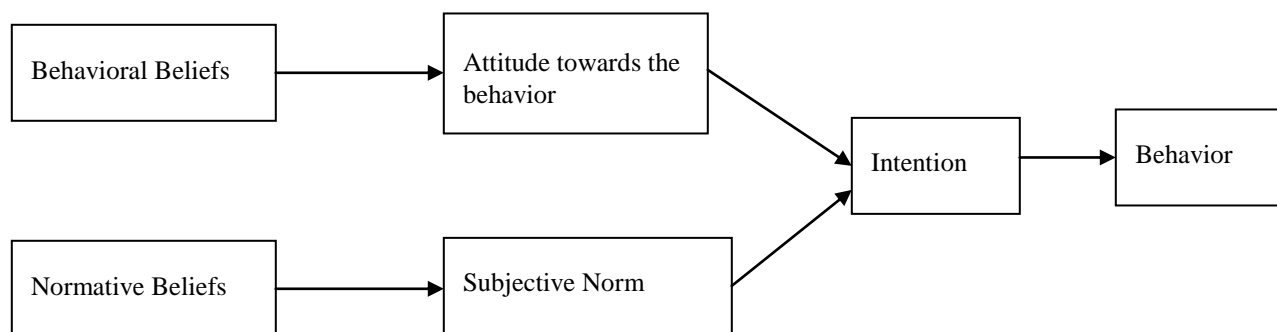


Figure 5. Theory of Reasoned Action

This model acts as a theoretical base for my action research study. If the pre-service education teachers develop favorable attitude towards digital storytelling experience and have positive intentions with respect to the project, there is likelihood that they will exhibit this behavior and use it when they enter classrooms and teach it.

### Summary

Different forms of storytelling have existed throughout different times.

Storytelling is the most widely form of organizing human experience (Bruner, 1991).

Storytelling has a significant place in classrooms. It is not only used for communication purposes, but also has been used to teach literacy skills, cooperative learning skills, critical thinking, and to build knowledge of different contexts (Mello, 2001). With the accessibility of computers and internet in the classroom, traditional art of storytelling has been reborn into digital storytelling so as to develop enGauge 21<sup>st</sup> century skills (2004) in students.

The review of literature of significant work in this field has stressed the importance of good story and story elements. There are different models given by The Center for Digital Storytelling (2003), Ohler (2007), and Porter (2005) to facilitate the process of digital storytelling and teachers have designed their own approaches to incorporate digital storytelling in their teaching.

Several teachers and researchers have done projects and research using digital storytelling in K-12 and higher education suggesting that it has potential to effect curriculum. To incorporate this new approach in schools, it is imperative that pre-service teachers' have experiences to use digital storytelling and possess knowledge and skills to create and teach digital stories. The theory of reasoned action (TRA) sets the foundation to understand attitudes and intentions and the need for pre-service teachers to develop positive attitudes and intentions with respect to digital storytelling.

## CHAPTER THREE

### METHODOLOGY

This chapter explains the methodology used for the study. In the next section, the purpose of the project, description of negotiations, context of the study and research procedures for the study are described. This is followed by the description of the research instruments, a table detailing the data sources for each of the research questions, and demographics of the participants and their number. The last section elaborates on the methodology followed for analysis and interpretation of collected data.

#### Action Research Study

Action Research is defined by Sagor (2000) as a disciplined process of inquiry conducted by and for those taking the action. The primary reason for engaging in action research is to assist the “actor” in improving and/ or refining his or her actions (p.3). He described the process as consisting of seven steps that includes the following:

- Selecting a focus
- Clarifying theories
- Identifying research questions
- Collecting data
- Analyzing data
- Reporting results
- Taking informed action

There are several models for action research and all of them have four common elements viz identifying an area of focus, data collection, data analysis and interpretation

and action planning. It is a cyclic process in which reflection after each step and during the course of the process is necessary and that differentiates action research from other research methods. The model that closely resembles my action research project is the *dialectic action research spiral* by Mills (2003, Figure 6). This model is for research done by teachers and for teachers and students. One of the goals for my study is to enhance my teaching strategies and those of other teaching assistants.

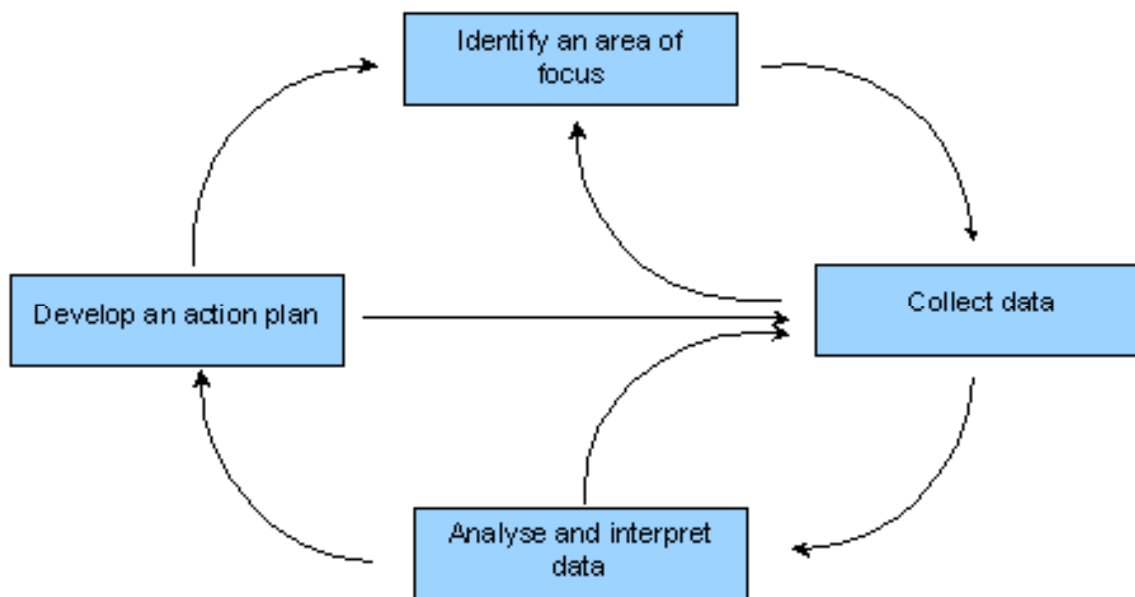


Figure 6. The Dialectic Action Research Spiral

For the current study, the action research project will show results for only the first cycle of identifying focus, collecting data, analyzing and interpreting data and developing a plan of action for future reference.

#### Purpose

The purpose of this action research study is to examine the influence of a digital storytelling experience on the attitudes and intentions of pre-service teacher education



students. Another purpose is to seek suggestions for improvement in the laboratory activity for the course as well as improve my own teaching strategies.

#### Description of Negotiations

Permission to conduct the study was obtained from Institutional Review Board at Iowa State University (See Appendix A). Signed consent forms were collected from the participants who volunteered for the study (See Appendix B). Informal permission was also obtained from the instructor of the introductory technology integration course, CI 201, to conduct the study in two of the six lab sections. The majority of the research procedures took place in computer labs in the College of Human Sciences.

#### Study Context

This digital storytelling action research study was conducted at a Midwestern university in the department of curriculum and instruction. The digital storytelling project is one of the many lab activities completed in the required introductory instructional technology course taken by undergraduate elementary and early childhood pre-service teacher education students. The introductory course is the first step for preparing pre-service teachers to use, apply and integrate technology in PreK-8 classrooms in all curricular areas and for all students. It is a 3-credit course with two 1-hour lectures and one 2 hours hands-on laboratory each week. Since this course is for future teachers, the National Educational Technology Standards for Teachers (NETS\*T) by ISTE, 2000 provided the instructional framework for the course. The lectures are prepared and given by a faculty member and the graduate students in the department specializing in instructional technology teach the laboratory sessions. The lectures introduced and discussed the topics that were carried on practically in laboratories that week. Each

laboratory is designed to build upon the skills learnt in the previous ones and is situated as a classroom scenario. Students developed the skills to use technology and also observed and participated in actual instructional activities that they could carry out in their future classrooms. The enrollment for the course is approximately 110 students with students divided into six lab sections.

### Research Procedures

In general, the participants had the pre-skills necessary for the digital storytelling lab from the earlier lab activities conducted during the course. Finding information on the web and information literacy, taking good digital photos and digital photography and putting images and text together in a script were some of the prior experiences given to the participants.





The digital storytelling project is one of the lab activities and the *designated performance indicator* (DPI) for the course. This extended activity began the week of March 5, 2007 and concluded the week of April 2, 2007. During the week of March 5, 2007, the digital storytelling activity was introduced to the students by reading a literature book, showing them examples of a digital story (this strategy is called “vision before application” and gives students many practical ideas) and discussing its importance in today’s classrooms. Some of the key features of the software (imovie) were demonstrated and students practiced the skills and prepared a short digital story in groups.

In this project, pre-service teacher education students researched primary sources and selected a historical event, episode or time. The students first select a topic that they feel personally connected with and which they believe might become an interesting digital story as described by Meadows (2003). A model lesson was conducted in

laboratory so students could actually replicate the activity in their future classrooms. The whole procedure for the activity over the span of four weeks is listed below:

- Introduction to the students
- Example of a digital history story and discussion on the importance of its use in today's classrooms
- Demonstrating some software features
- Practice time and making a short digital story in a group
- Scaffolding their experience by providing them websites for primary resources
- Selecting a topic and drafting a script for a story by students (focusing on social studies curriculum) using Ohler story mapping model
- Lesson plan on how to implement the lesson in their future classrooms and linking with two content standards and technology standards
- Approval of student's script and lesson plan
- Creating their own digital stories using images, audio, and narrative
- Sharing digital stories and peer feedback

The emphasis of this digital storytelling project was on using still images and weaving a story with emphasis on point of view. Some students also added one or two video clips.

			
<i>Finding images to illustrate the story</i>	<i>Getting storyboard approved</i>	<i>Inserting images in iMovie</i>	<i>Arranging images and placing transitions</i>

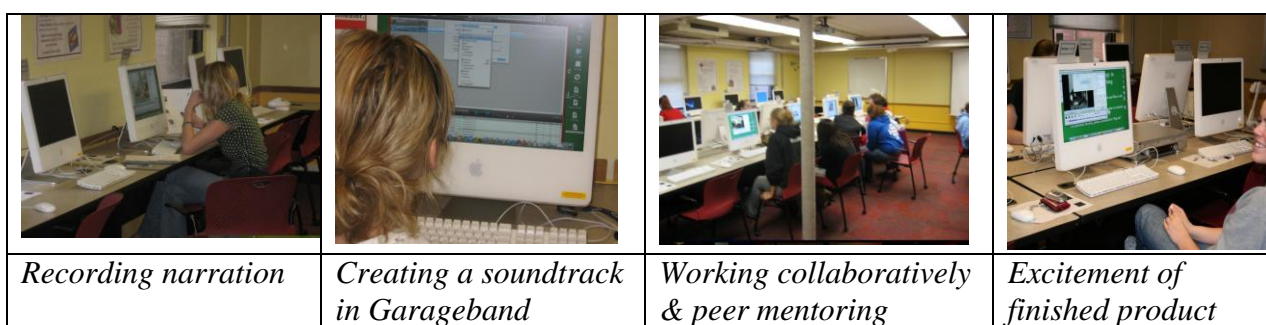


Figure 7. Visual representation of some of the steps involved in the digital storytelling project (Photo courtesy: Kurt Jones)

The purpose and requirements for participation in the study were explained and documented in the consent form. Participation in the study was completely voluntary and the student(s) could refuse to participate in the study at any time. A pre-survey was given to them at the end of the lab after explaining the study (See Appendix C). The participants at this point knew a little bit about digital storytelling but had not actually gone through the process of creating one.

During the week of April 2, 2007, students shared their digital stories and submitted reflections that were collected as a part of the data. A post-survey was given to them at the end of the lab to fill in using surveymonkey (See Appendix D). The post-survey included the same items as the pre-survey. In addition, the post-survey also had four open-ended questions to triangulate data with their reflections and quantitative responses. The reflections from students were also included in the data analysis.

A semi-structured interview was conducted with two students to understand the depth and breadth of the learning process they went through while creating digital historical stories. One student was randomly selected from each of the labs. The central theme of the items for the interview were the same as in the survey but the wordings of the items were framed for the interview and adapted as the interview progressed.

### Research Instruments

This action research study involved two survey instruments- one pre-survey which was given after the very first lab where digital storytelling project was introduced and students were becoming familiar with the terminology and what it pertains. The second survey called post-survey was completed by participants at the end of the digital storytelling experience, four weeks after the pre-survey. By this time, students had exposure to finding a topic, storymapping and storyboarding, creating, designing and sharing a digital story.

The pre-survey was categorized into three sections consisting of attitudes, intentions, and previous experience with digital storytelling. There were eleven items in all out of which five items related to attitudes towards using digital storytelling, three items related to intentions for its use in future classrooms and the final three questions addressed participants' previous experience with this kind of project. The items were constructed with the help of a graduate student who is researching the preservice teachers' beliefs for using technology. The draft of the survey was discussed with one more graduate student who is conducting research on digital storytelling and also with the course instructor. Some items were reframed with the help of the major professor.

Using a five point Likert type scale, ranging from strongly disagree (1) to strongly agree (5), participants were asked to rate their attitudes whether digital storytelling experiences will enhance their future students' learning, will lead to deeper understanding of the content, will make their teaching more motivating, will increase their effectiveness as a teacher and whether they will enjoy using digital storytelling projects in their classroom. Two of the items for the attitudes were negatively stated and all the five items

were correlated with one another. The same five point Likert type scale was used to rate their intention for increasing knowledge about digital storytelling for the classroom, using digital storytelling knowledge and skills in teaching history, and other teaching areas outside of history. The items pertaining to previous experience with digital storytelling were yes/no type and dealt with whether the term digital storytelling was new to them, whether they have viewed a digital story and if they have ever created one before.

The post survey consisted of the same items for attitudes and intentions section to document any changes that might have occurred to participants during the digital storytelling experience. In order to understand any documented changes better, four open-ended items were added to the post-survey.

A semi-structured interview was designed and conducted with two students, one from each lab to better understand their survey responses and give them opportunity to elaborate on those responses. The theme of the interview questions was similar to the open ended questions in the post-survey and expanded as the interview progressed (See Appendix E).

Each participant also submitted a reflection paper on the digital storytelling project and the complete experience. Guiding questions were given to students to write reflections (See Appendix F). The reflections also were a part of the qualitative data and used to triangulate the data sources.

The pre- and post-survey were collected through an online survey collection and evaluation system, [SurveyMonkey](#). For the focus interview, the faculty development lab was used to provide participants a relaxed atmosphere to share their experiences. Reflections were submitted at the end of the digital storytelling project on a CD along

with the digital story Quick Time file, storyboard, and a lesson plan. Figure 8 summarizes the relationships of three data sources to the research questions.

<b>Research Questions</b>	<b>Data Source #1</b>	<b>Data Source #2</b>	<b>Data Source #3</b>
1. Do the attitudes of pre-service teacher education students' towards the use of digital storytelling change during the study?	Student self-analysis on the Pre-survey	Teacher analysis of the student reflections on the project and the semi-structured interviews	Student self-analysis on the Post-survey
2. Do the intentions of pre-service teacher education students' with respect to the use of digital storytelling in their future classrooms change during the study?	Student self-analysis on the Pre-survey	Teacher analysis of the student reflections on the project and the semi-structured interviews	Student self-analysis on the Post-survey
3. How can the lab activity and my teaching strategy be improved?	Teacher analysis of the student reflections	Comments of the students in the post-survey	Analysis of the two focus interviews

Figure 8. Data sources for the research study

### Participants

The participants of the action research project were undergraduate students enrolled in the introductory technology integration course during the spring semester 2007. Because of my association with the course as one of the teaching assistants, I was able to conveniently select my two lab sections, 8 and 10 for this study. Each lab section consisted of 18 and 20 students respectively. Participation in the study was voluntary and there were no direct benefits in terms of grades. In all, 34 participants out of 38 responded to both surveys. Hence, the response rate was 89.5%. Out of 34 respondents, 30 were females and 4 were male participants (See Table 1). The students were freshmen, sophomores, juniors, and seniors. 53 percent of the participants were juniors, 20 percent were freshmen and sophomores and the remaining six percent were seniors. The majority

(91%) of the participants had elementary education as their major for teaching licensure and 9 percent were early childhood education majors.

Table 1. Demographics of the participants

<i>Variable</i>	<i>n</i>	<i>Percent</i>
Gender		
Male	4	12.0
Female	30	88.0
Year		
Freshman	7	20.0
Sophomore	7	20.0
Junior	18	53.0
Senior	2	6.0
Major		
Early Childhood Education	3	9.0
Elementary Education	31	91.0

### Data Analysis and Interpretation

Since the student pre- and post-survey were collected through SurveyMonkey, the responses to both the surveys were downloaded in form of separate excel files. Some preliminary analysis was done in the SurveyMonkey. The response count and mean were given with the data. The data were then arranged in alphabetical order by email addresses. Email addresses were matched in both the files and two extra respondents were found for the post-survey that were eliminated at this point. Other fixed variables like gender, major and year of study of the participants were added from the class lists accessed through the AccessPlus. Identity numbers (1,2,3...34) were given to participants and their email addresses were deleted. The quantitative data were then exported to SPSS, the statistical software program used for further analysis. The variables were



labeled in accordance with the Likert scale used for the survey and the responses for the negatively stated items were reverse coded in the SPSS data file.

Descriptive statistics including the frequencies, means, and standard deviations were used at the first stage. Then, the data were found to be normally distributed and to determine the changes between the pre- and post-survey results; a paired t-test was used to analyze the data using SPSS.

The open ended responses were exported from the excel file to a word file. Interviews were transcribed. The reflection papers were printed. Each of the three sets of qualitative responses was read and themes were coded with different colors. Several themes were identified in this process. Again the responses were reread to narrow down the themes and few key themes were eliminated and combined with other related ones.

For example, when I was reading students' responses, I highlighted connections to hometown in yellow and connection to country and people in teal. As I reread responses, I felt that both of them are strongly connected as students are feeling a personal connection with their family, home, country or significant people in their lives. Hence, I combined both the themes, highlighted in yellow and named the theme- personal connections.

How this personal connection theme emerged from the open-ended responses is illustrated below. Similarly, the personal connection theme was coded in the interview responses and reflections.

ID	Students' Responses
1	I think so! Before I did this project, I had no clue on how to make a movie, plus knowing certain things on history. Listening to other peoples' stories on history was exciting. It is a lot more interesting to listen to a digital story, then to sit down and read a book. <b>It's kind of like your there with the person interviewing them!</b>
4	Yes, I learned a lot about the history of Quaker Oats and something that is a big part of Cedar Rapids. <b>And I live in Cedar Rapids so I found it very interesting.</b>
16	Yes, while researching on my history topic I learned new things that you will not find in a text book. <b>The personal information explains a lot,</b> and you can't find those stories and facts in a text book.
20	Yes, <b>I learned a lot about my Grandmother's story</b> and a different aspect of WWII.
21	yes, <b>I did now know anything about who made the American flag</b> so it was very interesting
22	In a way it did, but with the short movie I created I mainly presented main facts that I already knew. <b>I did get to learn more about the person I interviewed that I didn't know before.</b>
23	Yes. <b>I gained a greater knowledge of my country.</b> I can more easily understand the economic status of my country in its current state by seeing a big event in which it's affected from the past.
25	Yes- I was able to find out more about things that aren't usually said in history text books. <b>I was able to find out more about the personal parts of the topic and what people who were there actually said and thought.</b>
27	Yes, <b>I learned more about my history of Eden Prairie Football</b> and I learned more information about Coach Grants father Bud Grant.
30	Yes, <b>it helped me learn more about the community where some of my family is from.</b>
34	Yes, <b>it allowed me to learn more about my town in an interesting way.</b> I did not just memorize the information I learned it.

3	<b>Learning more about my hometown history.</b>
14	Most valuable part was actually researching and then putting my words to the pictures. <b>I feel more connected to my topic now.</b>
17	The most valuable part of the digital storytelling project was when I got the actual story from my mother about her great grandmother. Even though I never got to meet my great grandmother, <b>I felt personally connected to her through her story.</b> It was amazing how proud I became of my great grandmother and her ambitious decision to move to America. This was a very valuable experience for me.
20	Being able to share <b>the story of my Grandmother.</b>
25	<b>I felt more connected to my topic in history.</b>
34	<b>Learning more about my town,</b> and sharing the final project.

## CHAPTER FOUR

### RESULTS AND DISCUSSION

This chapter reports the evaluation stage of my action research project. The data collected during the study will be presented and discussed. The results are organized and categorized according to the research questions. Within these research questions, first, the statistics from the pre- and post-attitude and intention survey will be analyzed to see attitudes and intentions towards the participants' digital storytelling experience. Secondly, the pre- and post-survey ratings will be compared and analyzed using a paired t-test. Next, the key themes from the student responses, focus interviews and reflections will be shared and discussed. A general discussion of the results will conclude this chapter.

#### Research Question # 1

*Do the attitudes of pre-service teacher education students' towards the use of digital storytelling change during the study?*

At the start of this action research study, the participants were asked to complete a digital storytelling attitude and intention pre-survey. The students were purposefully given this survey at the end of the very first introductory laboratory on the digital storytelling project in the hope that they would not have much experience yet and to know what attitudes and intentions they have towards a new technology project.

When asked about previous experience with digital stories and digital storytelling, 74% responded that the term was new to them (See Table 2). In response to whether they have viewed a digital story or not, 56% of the participants said no. Eighty-five percent of

the participants have never had the experience of creating a digital story. These results showed me that for majority of them, digital storytelling was going to be a new experience.

Table 2. Previous experience with digital storytelling

	% Yes ( <i>n</i> )	% No ( <i>n</i> )
Is the term digital storytelling new to you?	74.0 (25)	26.0 (9)
Have you ever viewed a digital story?	44.0 (15)	56.0 (19)
Have you ever created a digital story?	15.0 (5)	85.0 (29)

Interesting results were seen regarding the attitudes towards the digital storytelling experience in the pre-survey analysis (See Table 3). Ninety-seven percent of the students agreed or strongly agreed and believed that digital storytelling experiences will enhance their future students' learning and will help students to have a deeper understanding of the content. Eighty-eight percent rated agreed and above in response to if they will enjoy using digital storytelling with their students.

Seventy-nine percent disagreed or strongly disagreed that digital storytelling will not make their teaching more motivating to students. In response to what they think about digital storytelling not increasing their effectiveness as a teacher, 76% of the students disagreed or strongly disagreed. These results indicate that a high percentage of the pre-service teacher education students enrolled in introductory technology course have favorable attitudes towards new technology projects and in general believe that technology integrated teaching and learning tools will affect student's learning and their teaching positively.

Table 3. Pre-survey attitudes towards digital storytelling

	% Strongly Disagree	% Disagree	% Neutral	% Agree	% Strongly agree	Mean	SD	N
I believe digital storytelling experiences will enhance my future students' learning.	3.0	0.0	0.0	68.0	29.0	4.21	0.73	34
Using digital storytelling in the classroom will help my future students have a deeper understanding of the content.	3.0	0.0	0.0	70.0	27.0	4.18	0.73	33
*Using digital storytelling in the classroom will not make my teaching more motivating to students.	26.0	53.0	6.0	9.0	6.0	3.85	1.10	34
I will enjoy using digital storytelling with my students.	3.0	0.0	9.0	67.0	21.0	4.03	0.77	33
*Using digital storytelling in the classroom will not increase my effectiveness as a teacher.	29.0	47.0	9.0	12.0	3.0	3.88	1.06	34

\* Negatively stated items were reverse coded.

The participants were given the same survey four weeks later, at the end of the study. To further understand student responses on the post-survey, students were asked to respond in writing to four open-ended questions. The mean responses for the post-survey are given in Table 4.

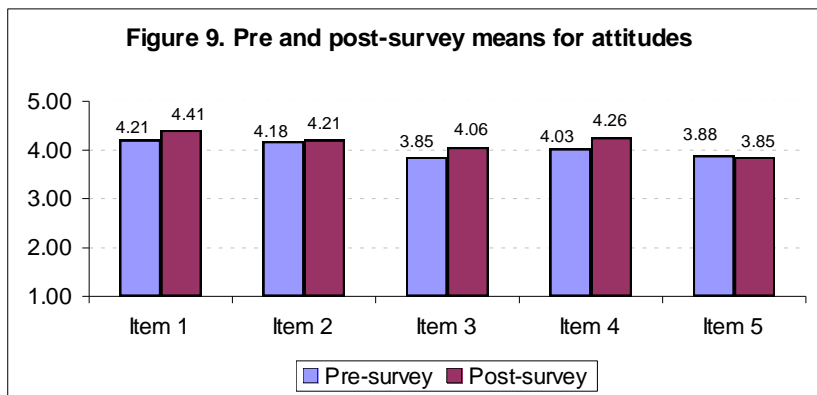
Table 4. Post-survey attitudes towards digital storytelling

	% Strongly Disagree	% Disagree	% Neutral	% Agree	% Strongly agree	Mean	SD	N
I believe digital storytelling experiences will enhance my future students' learning.	0.0	0.0	3.0	53.0	44.0	4.41	0.56	34
Using digital storytelling in the classroom will help my future students have a deeper understanding of the content.	0.0	0.0	12.0	56.0	32.0	4.21	0.64	34
*Using digital storytelling in the classroom will not make my teaching more motivating to students.	23.0	59.0	18.0	0.0	0.0	4.06	0.65	34
I will enjoy using digital storytelling with my students.	0.0	3.0	9.0	47.0	41.0	4.26	0.75	34
*Using digital storytelling in the classroom will not increase my effectiveness as a teacher.	23.0	53.0	12.0	9.0	3.0	3.85	0.99	34

\* Negatively stated items were reverse coded.

A paired t-test was used to determine if there were any significant differences between the pre-survey and post-survey mean responses for each item related to attitudes on the survey. There were *no significant differences* found between pre- and post-survey means on any of the survey items for participants' attitudes towards digital storytelling. However, the attitudes means were approximately the same or slightly higher for the post-survey which indicates that after having digital storytelling experience, the participants retained favorable attitude towards using it in their teaching and for enhancing student's learning.

The ceiling effect provides a possible explanation for these results. The ceiling effect suggests that if the means in the pre-survey are high, there is not enough room for significant increase in the means for the post-survey. Figure 9 illustrates the ceiling effect for the means for attitudes.



The open-ended responses of the participants were very interesting to read and several themes were identified that support the favorable attitudes students have towards digital storytelling experience. After going through the whole experience and creating a digital story, they understood the complexities it involves and the sense of accomplishment it gives. A few key themes that emerged from the responses were the

expansion of knowledge beyond just reading history from a textbook, value of the research component, learning about software and technology, celebrating their own and other people's stories and personal connectivity.

*Expansion of content knowledge beyond reading from a textbook*

It was evident from the responses and reflections of most of the students that the project helped to expand their content knowledge in history. Some students interviewed war veterans, some conversed with their parents and grandparents to learn about the history of their town or their migration from a different country and others went to places like museums and also contacted significant people who could provide first hand information. Similar observations were found by Kim (2006) where the digital storytelling project expanded the knowledge about the topic. Dupain (2005) points out that digital storytelling projects motivate students to learn about the academic concept.

Some of the comments illustrating this theme were:

- *It made me feel like I learned about history in a unique way that I will not soon forget. (Student 2, open-ended response)*
- *I learned a lot from the project and I think if you read from a textbook it is memorization and this is more like active and you are actually learning. I can recite my stuff to anybody, I know it now because I made a project about it and didn't just memorize it for a test. (Student 34, interview)*
- *I was able to find out more about things that aren't usually said in history textbooks. I was able to find out more about the personal parts of the topic and what people who were there actually said and thought. (Student 25, open-ended response)*
- *It allowed me to compile information and form it in my own words, allowing me to reinforce over and over what I was learning about history. (Student 33, open-ended response)*

### *Value of the research component*

Several students explored the Internet for websites such as Library of Congress, National Archives and others to get more information about the topic and find still images to go with their story. Some also read books like novel, children's literature, and textbooks to get as much information as they could. They described "researching", a fruitful experience in their responses. Students developed enGauge's (2004) higher order thinking skills as well as information literacy by researching about the topic. McDurry and Alterio (2003) have also emphasized the importance of research and gathering information to convey the story meaningfully. The storyteller should understand the event or the topic to convey it to the audience effectively. One of the interesting points that caught my attention was that some students believed researching was a separate entity from the actual digital story experience. It might have been possible that as a laboratory instructor I could have more clearly stated the various parts of the project. Some of the illustrative students' comments that go with the theme were:

- *I spent three to four nights of my week [spring break] at Mt. Mercy college library doing research on my topic. I feel by doing research over break really helped me have a good understanding of my topic. I checked out about five books and got some great information and also some great photos for my project. (Student # 4, reflection)*
- *I learned a lot from doing this project. I wasn't really interested before this project in finding more information about the plane crash but then after I actually started looking up information, I found it very interesting. (Student # 3, open-ended response)*
- *I actually enjoyed learning about it [medieval times] so much that I checked out some extra books from the library just to read them and learn even more. (Student # 24, open-ended response)*
- *I think [project expanded my knowledge] it was because of the research not the digital storytelling part of the assignment. (Student # 29, open-ended response)*



### *Learning about software and technology*

Generally speaking, students appreciate new productivity technology tools especially like iMovie because they have never worked with it to create a movie before. The theme is a key one because if pre-service students are familiar with the technology and are comfortable using it, there is a high probability that they will use it in real field situations. Standley (2003) remarked that the real power behind digital storytelling is the knowledge and ability to use contemporary tools to incorporate an old tradition of storytelling. For the majority of the students, the most valuable part of the project was learning the software. Some added that it allowed them to become comfortable with Macintosh computers. Some illustrative comments from students that support this theme included:

- *I learned not only about history and historical events, but I learned how to use iMovie. I am excited to get out into the real world and use iMovie with my students. (Student # 1, open-ended response)*
- *iMovie is a great form of technology as well as a learning tool. Through this project, I was open, inspired and creative. (Student # 9, reflection)*
- *Learning how to use iMovie and Garageband was the most valuable part. I had never used those two software programs and this project gives me more confidence to use it in my future classroom. (Student # 23, open-ended response)*
- *Before I started adding clips and sound to my iMovie, I was concerned about using the software... However, I was pleasantly surprised at how user friendly the iMovie software was and thought about how great of software it would be for students to use. (Student # 12, reflection)*

### *Celebrating each other's stories*

Learning from one's own digital story, listening to other people digital stories and celebrating the joy of accomplishment together was a big piece of this project. In the last

laboratory, some of the stories were shared. Students were asked to share their experience of creating the story and the peers commented about what they liked about their project. Sharing of digital story projects filled the laboratory with a sense of achievement and jubilation. Students learned from each other's stories and narrated their "Aahaa" moments and challenges. This theme was expressed through the responses and comments of the students. Some of them are listed below:

- *I learned more about the event by telling the story from one person's perspective. (Student # 7, open-ended response)*
- *Listening to other people's stories on history was exciting. It is a lot more interesting to listen to a digital story than to sit down and read a book. It's kind of like you are there with the person interviewing them! It feels real. (Student # 1, open-ended response)*
- *Just by sitting in class, watching others movies I learned more. (Student # 14, open-ended response)*
- *In my hometown, we have a museum of WW11 and a family friend that I would be able to obtain information from. Once getting together with [person's name], I was very inspired to hear his story and learned a great deal from him. By interacting and listening to one's story it is much more powerful and meaningful. (Student # 9, reflection)*

The theme was not evident in the reflections because students submitted their reflections one day before the last laboratory, where they shared and appreciated each other's stories.

#### *Personal connection*

One of the significant themes that emerged out of my analysis of the responses in post-survey, focus interviews and individual reflections on the project was the personal connectivity students felt and showed in their writings. Bransford et al. (2000) states "learners are often faced with tasks that do not have apparent meaning to them" (p. 58).

Knowledge is meaningful if it is able to generate connections for the learners. In this project, many students chose the topic related to their hometown, community, and country that were meaningful to them. They had the liberty to choose a topic of their interest. Students felt a more personal connection with the family, hometown, places in their community, content and their country.

*One of the students (# 17, open-ended response) remarked, “The most valuable part of the digital storytelling project was when I got the actual story from my mother about our great grandmother. Even though I never got to meet my great grandmother, I felt personally connected to her through her story. It was amazing how proud I became of my great grandmother and her ambitious decision to move to America.”*

Some more comments illustrative of this theme were:

- *I learned a lot about my hometown and the historical aspects of the different buildings. I feel like I have more of a connection to my hometown and the different buildings. (Student # 5, reflection)*
- *I’ve learned much more than how to use iMovie, Garageband, iPhoto, etc. This project taught me a lot about the country I live in. I can better understand where my country stands today from where it has come. (Student # 23, open-ended response)*
- *Before this class, I might have looked at an activity like this and thought that the students were spending so much time on the technology that it was impossible for them to learn anything. Now I can see the advantages that this project can offer. It can make the assignment more real and significant for the learner, which will help connect them to the project more. When a student is connected, they may take away more from the experience and can learn about the content area. (Student # 10, interview)*

Other themes included the value of the whole experience of the project, storyboarding, and realizing what goes behind teaching. One of the students remarked,

*“I thought that the storyboard was helpful because it made it easier to make sure that the narration went along with the pictures. I could just print off my storyboard and read it while starting and stopping the iMovie.” (Student # 2, reflection)*

## Research Question # 2

*Do the intentions of pre-service teacher education students' with respect to the use of digital storytelling in their future classrooms change during the study?*

To know the intentions with respect to digital storytelling, participants on the pre- and post-survey rated a separate section on intentions. On the survey, students were asked to respond to the statement, “I plan on increasing my knowledge of digital storytelling for the classroom.” On the pre-survey, 86% of the students agreed or strongly agreed with the statement (See Table 5). However, on the post-survey, 80% agreed or strongly agreed (See Table 6). This shows a decrease of 6% of students who were keen on increasing their knowledge about digital storytelling between taking the pre- and post-survey. One factor to explain this decrease could be after going through the experience, students realized that they possessed enough knowledge to create and teach a digital story that they don't think there is a need to increase it further.

Table 5. Pre-survey intentions with respect to digital storytelling

	% Strongly Disagree	% Disagree	% Neutral	% Agree	% Strongly agree	Mean	SD	N
I plan on increasing my knowledge of digital storytelling for the classroom.	0.0	3.0	6.0	<b>65.0</b>	26.0	4.15	0.66	34
I plan on using digital storytelling knowledge and skills while teaching history in my future classroom.	0.0	0.0	12.0	<b>71.0</b>	17.0	4.06	0.55	34
I plan on using digital storytelling knowledge and skills while teaching other subject areas. (e.g. math, science, reading, art)	0.0	0.0	15.0	<b>82.0</b>	3.0	3.88	0.41	33

The second statement for intentions asked the students about their plan on using digital storytelling knowledge and skills while teaching history in their future classroom.

On the pre-survey, 88% of the students agreed or strongly agreed, and the same percentage responded similarly on the post-survey. Three percent of the students shifted from agree (pre-survey) to strongly agree (post-survey). This indicates that students felt that digital storytelling is an important project to teach history. Typically, when students themselves do a hands-on activity to create an example of what grade level students can do with technology enriched projects, they get a better idea of its importance and how to implement project in their classrooms and this is what happened in this study. These responses are supported by the highly positive comments given by students on enhancing their own content knowledge of history and those are discussed in the following section.

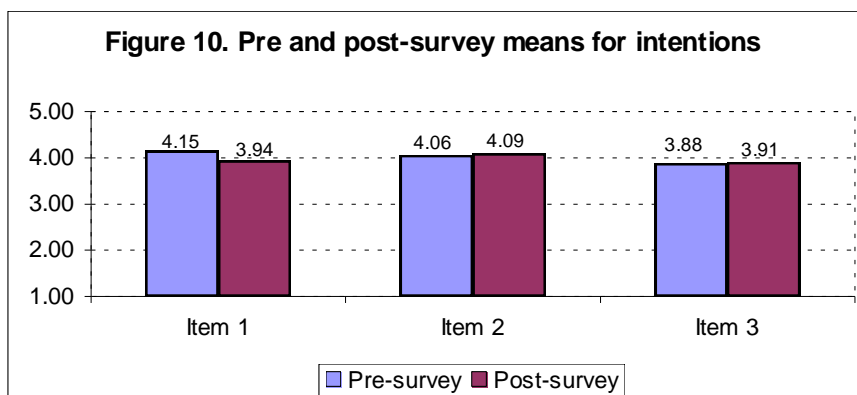
Table 6. Post-survey intentions with respect to digital storytelling

	% Strongly Disagree	% Disagree	% Neutral	% Agree	% Strongly agree	Mean	SD	N
I plan on increasing my knowledge of digital storytelling for the classroom.	0.0	3.0	17.0	<b>62.0</b>	18.0	3.94	0.69	34
I plan on using digital storytelling knowledge and skills while teaching history in my future classroom.	0.0	0.0	12.0	<b>68.0</b>	20.0	4.09	0.57	34
I plan on using digital storytelling knowledge and skills while teaching other subject areas. (e.g. math, science, reading, art)	0.0	0.0	20.0	<b>68.0</b>	12.0	3.91	0.57	34

An interesting statistic came from the third intention statement, “I plan on using digital storytelling knowledge and skills while teaching other subject areas (e.g. math, science, reading, art). Here, 85% of the students agreed or strongly agreed with this statement in the pre-survey. This number increased by 3% on the post-survey with 88% of students agreeing or strongly agreeing. Worth mentioning is the change from 3% (pre-survey) to 12% (post-survey) in the strongly agreeing scale. The students are intending to

use it in their future classrooms and can apply the knowledge and skills gained to other content areas. Students mentioned a number of examples from a variety of subjects using digital storytelling other than history and the main ones were science, math, English and cross-curricular areas. But, some students indicated that they need more examples to integrate in other subject areas.

A paired t-test was used to determine if there were significant differences between the pre- and post-survey mean responses for each of the intentions statements on the survey. There were *no significant differences* found between the pre- and post-survey means on any of the items under the intention section. These results again might be explained by the ceiling effect (See Figure 10).



#### Themes related to intentions

While analyzing the responses of the participants, I came across several comments directly mentioning their intention of using digital storytelling project in their future classroom. They opined to use it in history, science, math, English and other subject areas and how it can be an engaging and learning experience for students. Students also understood the time factor involved in this process and the feasibility of adding it within the curriculum. They stated that they will start with one or two projects a

year and valued more group projects in a classroom and dividing the work rather than individual projects.

Comments illustrating the theme included the following:

- *I would use it in a similar way that we used it, but I would definitely have my students do it in groups, as it would be a big workload for an individual student. (Student # 18, open-ended response)*
- *You can definitely use it in pretty much all the areas like social sciences are very obvious. It is like a storytelling process so history is you can always tell a story. I think you can always make up a story as a scientist and explain different things...I think you have to be little creative and you can use this project in any of the curriculum areas. I think without the technology, teachers are creative but with the technology they have to be very very creative. (Student # 10, reflection)*
- *I would use digital storytelling for a topic in science like the process a caterpillar goes through to become a butterfly. I think it would be more interesting to learn from a movie than from a book. (Student # 22, open-ended response)*
- *I will have my students tell a story about a certain topic, but I will give them all different perspectives to take. This will let the class see all different sides of a topic. (Student # 25, open-ended response)*
- *Not only do they [students] feel that it's "cool", it also makes them more eager to learn. Technology engages students and also helps their performance. I believe that I will definitely be using this sort of project in my classroom. (Student # 4, reflection)*

### Research Question # 3

*How can the laboratory activity and my teaching strategy be improved?*

One of the open-ended question in the post-survey asked participants, "What can we do that might improve/better your knowledge and skills about digital storytelling?" Participants provided a variety of constructive suggestions to improve. Some of them were happy with the way it was explained and delivered and had nothing more to add. Significant themes that emerged from my analysis were: the need for more time to

explore software and research the topic, the need for more examples to integrate in other subject areas, and the need for the presence of teaching assistants during workweek. These themes were also correlated with the interview and reflection responses. Students' constructive responses from these categories will help improve the digital storytelling laboratory activity for future semesters.

*The need for more time to explore software and research the topic*

Many students lamented that they had little time to complete the project and explore the software whereas some students realized that digital storytelling projects involve preparation and timely organization of the needed materials.

Some comments corresponding to this theme were:

- *Just having more time to learn about historical events, and knowing more about the software being used! (Student # 1, open-ended response)*
- *I think by having more practice with the programs might make the whole process easier and less frustrating. (Student # 17, open-ended response)*
- *I enjoyed making it and it didn't take me as long as it took other people. I really organized before going to lab to record my voice. (Student # 34, interview)*
- *Give us more activities and projects using the iMovie software. (Student # 23, open-ended response)*
- *I wish we would have learned more about how to use garageband to add music. (Student # 25, open-ended response)*

*The need for more examples to integrate in other subject areas*

With the technology projects, students learn by examples and doing hands-on activities. Some students provided examples in their reflection papers of how the digital storytelling projects can be used with other content areas yet there were some who said



that they needed more examples and some smaller projects to learn how to apply it in other subject areas.

Illustrative comments included the following:

- *Give more examples on how to incorporate into other subject areas. (Student # 10, open-ended response)*
- *Maybe integrate digital storytelling in different ways, or doing smaller projects with it. (Student # 12, open-ended response)*

#### *The need for presence of teaching assistants during workweek*

During the third week of the project, all the teaching assistants and the instructor had to leave town for a conference. This week was a workweek for students who had to sign sheets to reserve computers and devote more time than in a usual week. Some students encountered troubleshooting challenges and responded that presence of teaching assistants would have been beneficial and could have saved their time. Common responses by students were, *“It would have been nice to have a TA present during the week we were actually working on our projects. It would have helped save time.”*

*(Student # 18, open-ended response)*

On the other hand, there were students who took it as an opportunity and appreciated the collaborative environment it created in the laboratories. One student remarked, *“Some times I didn’t know what to do, but the other 201 students were very helpful. I like the collaborative environment that this assignment created. I felt like students really banded together to make this project work.”* *(Student # 10, reflection)*

#### General discussion

When I began this action research project, I wanted to find out if the digital storytelling experiences lead to development of favorable attitudes and positive intentions

among my pre-service teacher education students. Also, I wanted to have suggestions from students on how we could improve in designing the digital storytelling laboratory and our teaching strategies. The most astonishing results for me were the high reported means for participants' attitudes and intentions in the pre-survey. I did not expect this before the study. Since the pre-survey was administered immediately after the students' first exposure to digital storytelling, this result might suggest that students were immediately impressed and intrigued with this new approach.

After the preliminary results from the pre-survey, I was curious to find out if after the experience students' attitudes and intentions change and in which direction (positive or negative). Though there were no significant differences between the pre- and post-attitude and intention survey results, the students showed positive attitudes and intentions in the post-survey. The results suggest that after the extended experience with digital storytelling for four weeks, the majority of the participants valued the benefits digital stories bring in expanding content knowledge and deeper understanding, motivating students' for learning and researching, and enhancing the competencies of a teacher.

In one sense, it is interesting to note that the students maintained their very positive attitudes and intentions towards digital storytelling after the intensive and somewhat demanding laboratory experience in this area. Students also found digital storytelling experience as challenging and time-consuming yet a very valuable learning one.

Several themes related to attitudes emerged out of the students responses including expansion of knowledge beyond reading from a textbook, value of the research component, learning about the software, celebrating each other's stories, personal

connection with the topic, importance of storyboarding and the complete experience from scratch to end.

The majority of the students said that the project expanded their content knowledge beyond what they had ever read from a textbook. I believe it is due to the nature of the project and the basic approach and structure followed for implementing the digital storytelling project. Students met and talked with real people who saw the event with their own eyes or who knew about it. Conversing with those people gave them insights about how the event impacted their lives and what was happening. This finding is in accordance with Dupain (2005) stating that digital storytelling motivates students to understand an academic concept.

Students valued the research they did and how it aroused interest in them to explore more and learn about the topic. Students took charge of their learning and felt that they should have good understanding of the facts in order to write a story around it. Many students checked out books from the library and found other valuable sources of information for the topic they were researching. This finding is reinforced by the findings from Hall and Hudson (2006) where a video production project enabled the students to think deeply and critically about the content that was represented abstractly in textbooks.

Students felt frustrated working with the new software but also mentioned that in the process they gained better understanding of working with iMovie and greater competence to work on Macintosh computers. It is normal to feel frustration when new technological tools are involved. The majority of the students wrote in their responses that the most valuable part of the project was learning about iMovie and Garageband and being able to create movies and music. In one study, it is mentioned that,

*“No matter what technology is used, the real power of digital storytelling comes when students understand how to shape information and ideas to best present them to any audience in the world. The real power behind digital storytelling is the knowledge and ability to use new tools to teach the old tradition of storytelling”* (Standley, p. 18, 2003).

What makes storytelling and digital storytelling different is the added advantage of being able to share and showcase the authentic product created. The laboratory session was converted into a movie session and students were thrilled to see their own and other's digital stories on screen and learn different perspectives and topics. They felt a sense of joy and accomplishment and appreciated each other's work. Celebrating stories and showcasing creativity is an important piece of digital storytelling project (Banaszewski, 2002; Dupain, 2005; New, 2006).

Many students selected a topic that had a personal connection to them. They made a digital story on their hometown, grandparents, community, or country and gained a better understanding of what that means to them. Knowledge is meaningful to learners if they are able to generate personal connection with the content (Bransford et al, 2000). Many were nostalgic when writing reflections and felt a deeper appreciation for their parents, grandparents, hometown or country.

The themes indicated that going through the experience and creating a digital story was valuable to students and that they retained favorable attitudes towards it. They also realized its potential in motivating and affecting students' learning. One of the interesting results was that some students considered researching as a separate entity from the digital storytelling project. This suggests that I should be clearer when explaining different steps of the project.

Several comments and responses from students indicated that they had positive intentions of using digital storytelling project in their future classroom. Some stated that they will use exactly the way it was modeled in the laboratory and there were several who realized the time factor involved in this process and feasibility of adding it within the curriculum. Students mentioned that they would use digital stories for group projects and do it once or twice a year. Students found that it was a great learning tool for them and they would like to use it in history, science, math, and language arts.

Many students were happy with the way the whole project was undertaken. Several constructive suggestions were gathered which included the need for more time to explore software and research the topic, the need for more examples to integrate in other subject areas, and the need for presence of teaching assistants during workweek.

Summarizing the results of this action research study, I would say that providing digital storytelling experience to pre-service teacher education students is beneficial in developing favorable attitudes and positive intentions for its future usage. My results indicate that students value the digital storytelling experience and the results provide specific suggestions for strengthening the pre-service teacher digital storytelling experience.

## CHAPTER FIVE

### RECOMMENDATIONS

After doing this action research study, I believe that digital storytelling is a valuable learning experience for pre-service teacher education students to develop higher order thinking skills, multi-literacies (visual, information, technological), creativity, interactive communication, collaboration, and effective use of real-world tools (enGauge's 21<sup>st</sup> century skills, 2004). Such experiences provide them opportunities to learn and create authentic products and develop favorable attitudes and intentions to use them in their future classrooms. Hence, it is desirable that our pre-service teacher education students should be familiar with this kind of technology. In this chapter, I will suggest recommendations for the introductory technology integration course and teacher education programs in general based on the results of the study.

#### Recommendations for the course

For the introductory technology integration course, I would suggest four recommendations to improve the experience for the students. The recommendations are:

- Continue the basic approach and structure of the digital storytelling assignment
- Provide more time for sharing and celebrating digital story projects
- Provide more time in the beginning for hands-on activity with technology
- Provide more examples or activities from different content areas

#### *Continue the basic approach and structure of the digital storytelling assignment*

Since the majority of the students gained a lot from the way assignment was introduced and explained, the basic approach and structure of the digital storytelling

project should be followed in future semesters. Examples of digital stories were shown before they created one. As explained by Ohler (2007) and followed in the assignment, the story is big and story elements should be stressed. The point of view is a must while narrating the story. Providing them a number of websites on primary sources scaffolded the students' research and modeled the classroom scenario for them.

*Provide more time for sharing and celebrating each other's projects*

By listening and watching other digital stories, students gain new knowledge and understanding of different perspectives and ways of presenting information. They appreciate the efforts of their peers and view a variety of ways of using technological tools. Students feel a sense of accomplishment and achievement when their peers appreciate them and they see their creations on the big projector. Celebrating and sharing digital stories is an important piece to the whole experience of digital storytelling. A separate time should be allotted in the lab schedule to showcase and share digital stories within the laboratories. This is also a part of modeling lesson for the future teachers.

*Provide more time in the beginning for hands-on activity with technology*

Feeling comfortable of using technology is the first step in developing favorable attitudes towards it. Several students in this study lamented that they needed more time in the beginning to become familiar with the new software. The pre-activity for the digital storytelling project was conducted in groups with a meaningful context that was followed by spring break. Since it was their first time using iMovie, many students forgot the basic functions of the software when they returned after the break. Providing them more time to play with different features might help reduce frustration felt by students.

*Provide more examples or activities from different content areas*

Most of the students have positive intentions for using digital storytelling projects in their future classroom to teach history because they have seen the lesson modeled for them and have created a digital story around a historical event or episode. Some students can visualize and apply the knowledge and skills gained in other content areas and provided examples in their reflections. In general, it would be beneficial for all students if examples from different content areas are shown to them or we can switch to different subject (science, math, or reading as main focus) in future semester(s) and show examples of social sciences from this semester.

Recommendation(s) for other teacher education programs

For other teacher education programs, I would suggest one recommendation. Since the results of this study indicate that digital storytelling has a promising future in developing positive attitudes and intentions in pre-service teacher education students, it is important to include this activity in other teacher education programs in content area preparation courses. Moreover, it would provide equal opportunities for pre-service teachers in the country that will lead to higher probability that it would be used in future classrooms. The process of digital storytelling is of significant importance and can be implemented in the similar way as it was implemented in this project or by reviewing the work done by significant people in this area.

The particular assignment on digital storytelling can be implemented by other teacher education programs in different content areas. The basic approach and structure can be shared across universities and applied within their context and content-based experiences using technology.



### Final thoughts

The main purpose of this action research study is to influence my thoughts and design a course of action for me. I see a promising future for digital storytelling in engaging students and influencing their learning. Since I am leaving for India very soon, my future goal is to get involved with preparing and teaching workshops for teachers to integrate digital stories in content areas in the school where I taught in India and extend it to other schools in my district. Researching about what I will be doing will also be part of my future action. After doing this action research project, I want to continue to know and improve what I am doing, collecting data and analyzing it will give me a good idea on what steps and measures to take. I would also try to be in touch with faculty and colleagues at Iowa State University to update what's new is going on and figure out what kind of collaborative work we can do.

## APPENDIX A. HUMAN SUBJECTS APPROVAL DOCUMENT

**Checklist for Attachments**

The following are attached (please check ones that are applicable):

- ☒ A copy of the informed consent document OR ☐ Letter of introduction to subjects containing the elements of consent  
☐ A copy of the assent form if minors will be enrolled  
☐ Letter of approval from cooperating organizations or institutions allowing you to conduct research at their facility  
☒ Data-gathering instruments (including surveys)  
☐ Recruitment fliers, phone scripts, or any other documents or materials the subjects will see

Two sets of materials should be submitted for each project – the original signed copy of the application form and one copy and two sets of accompanying materials. **Federal regulations require that one copy of the grant application or proposal be submitted for comparison with the application for approval.**

**FOR IRB USE ONLY:**

Initial action by the Institutional Review Board (IRB):

- ☐ Project approved. Date: \_\_\_\_\_  
☐ Pending further review. Date: \_\_\_\_\_  
☐ Project not approved. Date: \_\_\_\_\_

Follow-up action by the IRB:



IRB Approval Signature

28 February 2007

Date

## APPENDIX B. INFORMED CONSENT DOCUMENT

**Title of Study:** The influence of digital storytelling on pre-service elementary teacher education students' attitudes and intentions towards technology use in teaching and learning

**Investigator(s):** Sonia Gakhar, M.Ed. student

This is a research study. Your participation is completely voluntary. Please take your time in deciding if you would like to participate. Feel free to ask questions at any time.

### INTRODUCTION

The purpose of this study is to examine the influence of digital storytelling on the attitudes and intentions of teacher education students towards technology use in teaching and learning. You are being invited to participate in this study because you are a student at Iowa State University and currently enrolled in the CI 201 class.

### DESCRIPTION OF PROCEDURES

If you agree to participate in this study, your participation will consist of completing a pre and post survey, which will be given to you at the beginning and end of the digital story project. You may skip any questions in the survey that you do not feel comfortable answering. The investigator will take photographs, conduct observations, and will have access to student work and reflections for the purposes of the study. A semi-structured interview session will be conducted at your convenience. Pseudonyms will be used whenever quoting your thoughts and ideas.

### RISKS

There are no foreseeable risks at this time from participating in this study.

### BENEFITS

If you decide to participate in this study there will be no direct benefit to you. However, the volunteers who will participate in the study may gain greater understanding of the process they go through as well as the content knowledge of history while creating digital stories and help them think critically about the potential of its uses in future classrooms. It is hoped that the information gained in this study will benefit teacher education programs' ability to incorporate digital storytelling as a part of their courses. In addition, results will help me better understand how to assist students improve their understanding of digital storytelling and inform my practice as a professional teaching pre-service teachers.

### COSTS AND COMPENSATION

You will not have any costs from participating in this study. You will not be compensated for participating in this study.

### PARTICIPANT RIGHTS

Your participation in this study is completely voluntary and you may refuse to participate or leave the study at any time. If you decide to not participate in the study or leave the study early, it will not result in any penalty or loss of benefits to which you are otherwise entitled.

### CONFIDENTIALITY

Records identifying participants will be kept confidential to the extent permitted by applicable laws and regulations and will not be made publicly available. However, federal government regulatory agencies and the Institutional Review Board (a committee that reviews and approves human subject research studies) may inspect and/or copy your records for quality assurance and data analysis. These records may contain private information.

To ensure confidentiality to the extent permitted by law, the following measures will be taken. Data will be saved in the form of password-protected files and will be kept in a secure location. In publication of the study, participants' identities will remain confidential. Pseudonyms will be used when necessary. All data will be erased when the paper that reports on the findings of this research has been published.

### QUESTIONS OR PROBLEMS

You are encouraged to ask questions at any time during this study.

- For further information about the study contact Sonia Gakhar, e-mail: [sgakhar@iastate.edu](mailto:sgakhar@iastate.edu) tel: 294-9997; or supervising faculty member Dr. Ann Thompson, e-mail: [eat@iastate.edu](mailto:eat@iastate.edu) tel: 294-5287.
- If you have any questions about the rights of research subjects or research-related injury, please contact the IRB Administrator, (515) 294-4566, [jcs1959@iastate.edu](mailto:jcs1959@iastate.edu), or Diane Ament, Director, Office of Research Assurances (515) 294-3115, [dament@iastate.edu](mailto:dament@iastate.edu).

\*\*\*\*\*

### PARTICIPANT SIGNATURE

Your signature indicates that you voluntarily agree to participate in this study, that the study has been explained to you, that you have been given the time to read the document and that your questions have been satisfactorily answered. You will receive a copy of the written informed consent prior to your participation in the study.

Participant's Name (printed) \_\_\_\_\_

\_\_\_\_\_  
(Participant's Signature)

\_\_\_\_\_  
(Date)

### INVESTIGATOR STATEMENT

I certify that the participant has been given adequate time to read and learn about the study and all of their questions have been answered. It is my opinion that the participant understands the purpose, risks, benefits and the procedures that will be followed in this study and has voluntarily agreed to participate.

\_\_\_\_\_  
(Signature of Person Obtaining  
Informed Consent)

\_\_\_\_\_  
(Date)

## APPENDIX C. DIGITAL STORYTELLING ATTITUDE AND INTENTION PRE-SURVEY

In the 21st century, the use of electronic media tools combined with traditional storytelling has given rise to digital storytelling. Digital storytelling involves telling stories and sharing information through multimedia. Please indicate the level of agreement /disagreement to the following statements by selecting one of the options.

### Attitudes

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I believe digital storytelling experiences will enhance my future students' learning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Using digital storytelling in the classroom will help my future students have a deeper understanding of the content.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Using digital storytelling in the classroom will not make my teaching more motivating to students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I will enjoy using digital storytelling with my students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Using digital storytelling in the classroom will not increase my effectiveness as a teacher.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### Intentions

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I plan on increasing my knowledge of digital storytelling for the classroom.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I plan on using digital storytelling knowledge and skills while teaching history in my future classroom.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I plan on using digital storytelling knowledge and skills while teaching other subject areas (e.g. math, science, reading, art).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### Previous Experience with Digital Storytelling

	Yes	No
1. Is the term digital storytelling new to you?	<input type="radio"/>	<input type="radio"/>
2. Have you ever viewed a digital story?	<input type="radio"/>	<input type="radio"/>
3. Have you ever created a digital story?	<input type="radio"/>	<input type="radio"/>

Thank you for your time and participation.

## APPENDIX D. DIGITAL STORYTELLING ATTITUDE AND INTENTION POST-SURVEY

In the 21st century, the use of electronic media tools combined with traditional storytelling has given rise to digital storytelling. Digital storytelling involves telling stories and sharing information through multimedia. Please indicate the level of agreement /disagreement to the following statements by selecting one of the options.

### Attitudes

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I believe digital storytelling experiences will enhance my future students' learning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Using digital storytelling in the classroom will help my future students have a deeper understanding of the content.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Using digital storytelling in the classroom will not make my teaching more motivating to students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I will enjoy using digital storytelling with my students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Using digital storytelling in the classroom will not increase my effectiveness as a teacher.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### Intentions

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I plan on increasing my knowledge of digital storytelling for the classroom.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I plan on using digital storytelling knowledge and skills while teaching history in my future classroom.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I plan on using digital storytelling knowledge and skills while teaching other subject areas. (e.g. math, science, reading, art)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

APPENDIX D. DIGITAL STORYTELLING ATTITUDE AND INTENTION POST-SURVEY (CONT')

**2. Please write down your thoughts about the following questions.**

**1. Did the digital storytelling experience expand your content knowledge in history? Yes/No. Give reasons for your answer.**

**2. What was the most valuable part of the digital storytelling project for you?**

**3. Give an example of how you intend to use digital storytelling in your future classroom.**

**4. What can we do that might improve/better your knowledge and skills about digital storytelling and its application in history?**

Thank you for participating in the study.

#### APPENDIX E. FOCUS SEMI- STRUCTURED INTERVIEW GUIDING QUESTIONS


- Share your experience of creating a digital story?
- What did you like the best about the digital storytelling assignment?
- What challenges did you face while making this project?
- How much time did you spend on the project?
- How do you think digital storytelling experiences can enhance student's learning?
- How often do you plan to use this kind of project in your future classrooms?
- In what content areas would you like it to use? Give an example.
- What would you like to change in the digital storytelling project?



APPENDIX F. QUESTIONS TO GUIDE STUDENT REFLECTIONS  
(Cynthia Garrety and Denise Schmidt, 2006)


- ✓ Tell a story about the activity and how you felt as a learner completing the activity. These can include emotions, light bulb learning moments and frustrations.
- ✓ Talk about how you felt as a teacher, in other words what thoughts did you have about how to implement this type of lesson into your future classroom? What changes would you make? What other content areas could you integrate this lesson into?
- ✓ What did you learn about the content? In other words, yes we know you are learning technology in this course but you are also learning about various content topics as you choose animals to hunt for, historical events to make a movie about, etc.
- ✓ Make connections between the activity you just did and topics from lecture and the readings required during this activity. Talk about those connections and what they mean to you as a future educator.
- ✓ Make connections between prior learning experiences and this activity. These could include experiences in other teacher education classes, in the classroom with children and your own experiences in the classroom. How have things changed? How did this prior experience impact how you looked at and completed this activity?

## APPENDIX G. EXAMPLE OF A STORYBOARD BY A STUDENT



World War II was entering it's second year and I was beginning high school.

[http://www.a2zcds.com/SiteImages/Remembering\\_World\\_War\\_II\\_2.jpg](http://www.a2zcds.com/SiteImages/Remembering_World_War_II_2.jpg)



<http://www.seacoastmarines.com/twoSupplies.jpg>

Supplies were very short in America because so many of them were being used to make supplies for the soldiers and the war.



<http://www.worldwar2extra.co.uk/Online%20Museum/Large%20photo%20pages/Food%20Que.html>

Rations were given to us so that the prices would stay low because there was a short supply and a high demand for almost everything.




Supplies such as sugar, kleanex, nylon hose, stamps, gasoline and leather are just a few of the items that were rationed.

<http://www.worldwar2extra.co.uk/Online%20Museum/Large%20photo%20pages/typical%20ration.htm>



<http://www.worldwar2extra.co.uk/Online%20Museum/Large%20photo%20pages/inkout.html>


Many everyday items such as bread, stamps and gasoline were rationed every two or three weeks. My family had a hard time making it two weeks on one ration of bread and gasoline.



[http://www.archives.gov.on.ca/english/exhibits/daypics/4143\\_gas\\_rations2\\_1020.jpg](http://www.archives.gov.on.ca/english/exhibits/daypics/4143_gas_rations2_1020.jpg)

To receive rations we had to be issued a coupon book and prove that our family only had two pounds of sugar in our possession.

## APPENDIX G. EXAMPLE OF A STORYBOARD BY A STUDENT (CONT')



There was no guarantee that we would be able to get our ration just because we had a coupon book, sometimes there just weren't enough to give to everyone.

<http://www.kathyamen.net/journal/imagestation412.jpg>



[http://oni-d.sprafx.com/pics/documents/Stock\\_Jail%20cell%20-%20toilet.jpg](http://oni-d.sprafx.com/pics/documents/Stock_Jail%20cell%20-%20toilet.jpg)

The penalty for lying to get more coupons was up to 10 years in prison or a 10,000 dollar fine.

<http://www.painetworks.com/photos/gel/gd313.jpg>

The leather supply was very short because there were so many soldiers that needed shoes and other supplies so most of the time my sisters and I had to go barefoot.




<http://www.nmwh.org/Sugar%20ration.jpg>

Many times the lines would be very long and the supplies ran out before everyone had their rations. The women of the household usually went to town to purchase rations.



Very aggressive men would step on my feet and elbow their way to the front of the line to get their rations first, shouting at us while we waited patiently.

<http://newdeal.fen.org/lorany149.htm>



[www.seacore.com/WWII.html](http://www.seacore.com/WWII.html)

The war ended in 1945 but rationing continued many months after the war ended because supplies were still very short.

## APPENDIX H. GRADING RUBRIC FOR THE STUDENT ASSIGNMENT

**Multimedia & Digital Video Editing Project**  
 C I 201 Spring 2007  
 (C & I Performance Indicator Assignment)  
 100 points (Total project score will be doubled)

Project Criteria	Exceptional	Acceptable	Marginally Acceptable	Unacceptable	Comments
<b>Project Planning (Storyboard and Lesson Plan):</b> Appropriate topic selected for assignment (Elementary Social Studies connection). The project is thoroughly planned using a storyboard that visually documents each step of the project. Storyboard is scripted by documenting the pictures and the sound/narration used for the project. Storyboard (Digital Format) is handed in with assignment. Storyboard reflects outstanding planning and organization for the project. Lesson plan (Digital Format) contains all information necessary for recreating the project in the classroom.	10 pts.	8 pts.	6 pts.	0-5 pts.	
<b>Content and Research:</b> The project shows knowledge of social studies content in terms of an event, person or change. Evidence of thorough and complete research completed on the topic. The information presented is accurate and unbiased. Copyright law is followed and all sources (text, images, music, etc.) are properly cited.	5 pts.	4 pts.	3 pts.	0-2 pts.	
<b>Writing:</b> The story contains all the elements including a beginning, call to action, conflict, resolution and end (story map). Final project tells a story surrounding a time, event or person from a specific point of view.					
<b>Use of Images:</b> Images create a distinct atmosphere or tone that matches different parts of the story. The images evoke an emotional response reflective of the topic selected. The images may communicate symbolism and/or metaphors where appropriate. The use of images follows copyright law and are properly cited.					
<b>Use of Sound:</b> Music and/or narration stirs a rich emotional response that matches the story line well. The use of any commercial music or recordings follows copyright law and are properly cited.					

## APPENDIX H. GRADING RUBRIC FOR THE STUDENT ASSIGNMENT (CONT')

Project Criteria	Exceptional	Acceptable	Marginally Acceptable	Unacceptable	Comments
	5 pts.	4 pts.	3 pts.	0-2 pts.	
<b>Use of Effects:</b> A unique feature of digital video editing is the ability to use effects that are appropriate and enhance the message or story. Effects such as titles, transitions and special effects were used to enhance the visual presentation of the project. The effects did not distract from the message or story.					
<b>Sources Properly Cited:</b> All sources used (images, Websites, books, music, etc.) have been properly cited using APA format. References in APA format should be included at the end of the lesson plan document.					
	10 pts.	8 pts.	6 pts.	0-5 pts.	
<b>Reflection:</b> Write a thoughtful reflection that documents the learning process throughout this activity – Returning to the Experience, Attending to/Connecting with Feelings, Evaluating the Experience. Written reflection is high quality and reflects upon the experience, the feeling and the evaluation of the entire process. Reflective thought is present in the response and poses some interesting insight on using multimedia and digital video editing techniques in the classroom.					

Grading Scale for Performance Indicator	
<i>Acceptable</i>	<b>80-100</b>
<i>Marginally Acceptable</i>	<b>74-79</b>
<i>Unacceptable</i>	<b>0-73</b>

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